CLAIM AMENDMENTS

1.   (currently amended) A Wireless Personal Area Network (WPAN), the WPAN comprising:

a piconet coordinator (PNC); and

a plurality of user piconet devices (DEVs); and wherein:

the PNC transmits a respective Ultra Wide Band (UWB) pulse to each DEV within the plurality of DEVs;

after receiving its respective UWB pulse, each DEV within the plurality of DEVs transmits ~~a~~ at least one additional respective UWB pulse back to the PNC;

the PNC performs ranging of relative position of each DEV within the plurality of DEVs using the time duration of round trip time of the respective transmitted UWB pulse and the at least one additional respective received UWB pulse thereby determining distance between the PNC and each DEV within the plurality of DEVs;

based on the ranging of relative position each DEV of the plurality of DEVs, the PNC groups the plurality of DEVs into at least two groups and identifies a corresponding profile for each group thereby forming a plurality of profiles; and

the profile of each group governs the communication between the DEVs of that group and the PNC.

2.   (original)   The WPAN of claim 1, wherein:

the WPAN includes a first piconet and a second piconet;

the PNC is a first PNC;

the plurality of DEVs is a first plurality of DEVs;

the second piconet includes a second PNC and a second plurality of DEVs;

the first PNC and the second PNC perform ranging of all the DEVs of the first plurality of DEVs and the second plurality of DEVs using transmitted and received UWB pulses to and from each of the DEVs of the first plurality of DEVs and the second plurality of DEVs; and

based on the ranging of all of the DEVs, the first PNC and the second PNC operate cooperatively to group each of the DEVs of the first plurality of DEVs and the second plurality of DEVs into either the first piconet or the second piconet.

3.	(previously amended)The WPAN of claim 1, wherein:

the PNC sets up peer to peer (p2p) communication between two DEVs of the plurality of DEVs;

the PNC identifies a p2p profile to govern communication between the two DEVs that communicate using p2p communication; and

the p2p profile includes at least one of a data rate, a modulation density, a code having a code rate, and a time frequency code (TFC).

4.	(original)	The WPAN of claim 3, wherein:

the PNC operates as a repeater for the p2p communication between the two DEVs of the plurality of DEVs.

5.	(previously amended)The WPAN of claim 1, wherein:

one of the plurality of profiles includes at least one of a data rate, a modulation density, a code having a code rate, and a time frequency code (TFC).

6.	(previously amended)The WPAN of claim 1, wherein:

a first group of the at least two groups includes DEVs of the plurality of DEVs that are relatively closer to the PNC than DEVs of the plurality of DEVs that are in a second group;

a first profile that governs the communication between the DEVs of the first group and the PNC includes at least one of a first data rate, a first modulation density, a first code having a first code rate, and a first time frequency code (TFC); and

a second profile that governs the communication between the DEVs of the second group and the PNC includes at least one of a second data rate, a second modulation density, a second code having a second code rate, and a second TFC.

7.	(original)	The WPAN of claim 6, wherein:

the first data rate is greater than the second data rate.

8.   (original)   The WPAN of claim 6, wherein:

the first modulation density is of a higher order than the second modulation density.

9.   (original)   The WPAN of claim 6, wherein:

the first code rate is higher than the second code rate.

10.   (original)   The WPAN of claim 1, wherein:

the PNC repeatedly performs ranging of the position of each DEV within the plurality of DEVs after every elapse of a predetermined period of time.

11.   (previously amended)The WPAN of claim 10, wherein:

at least one DEV of the plurality of DEVs initially is grouped into a first group of DEVs;

the at least one DEV of the plurality of DEVs changes its relative position with respect to the PNC during an elapse of one of the predetermined periods of time;

the PNC detects the change in relative position of the at least one DEV of the plurality of DEVs when performing ranging after the elapse of one of the predetermined periods of time; and

the PNC re-groups the at least one DEV of the plurality of DEVs that has changed its relative position with respect to the PNC into a second group of DEVs whose profile governs the subsequent communication between the at least one DEV and the PNC.

12.   (previously amended)The WPAN of claim 1, wherein:

the PNC directs two DEVs of the plurality of DEVs to perform ranging of the relative position of each of the two DEVs within the plurality of DEVs using the time duration of round trip time of a transmitted UWB pulse and a received UWB pulse between them thereby determining a distance between the two DEVs of the plurality of DEVs;

one of the two DEVs of the plurality of DEVs provides the ranging information indicating the distance between the two DEVs to the PNC; and

the PNC employs the ranging information indicating the distances between the PNC and the two DEVs as well as the ranging information indicating the distance between the two DEVs to perform triangulation thereby determining the specific locations of the two DEVs with respect to the PNC.

13.   (original)   The WPAN of claim 12, wherein:

based on the ranging of the two DEVs of the plurality of DEVs generating using triangulation that determines the specific locations of the two DEVs, the PNC identifies a first profile for one of the two DEVs and a second profile for the other of the two DEVs;

the first profile governs the communication between the one of the two DEVs and the PNC; and

the second profile governs the communication between the other of the two DEVs and the PNC.

14.   (previously amended)The WPAN of claim 1, wherein:

the UWB pulses are generated using a frequency band of a UWB frequency spectrum that spans from 3.1 Giga-Hertz (GHz) to 10.6 GHz.

15.   (previously amended)The WPAN of claim 14, wherein:

the UWB frequency spectrum is divided into a plurality of frequency bands; and

each frequency band of the plurality of frequency bands has a bandwidth of 500 Mega-Hertz (MHz).

16.   (previously amended)A Wireless Personal Area Network (WPAN), the WPAN comprising:

a piconet coordinator (PNC) that includes Global Positioning System (GPS) functionality that is operable to determine a specific location of the PNC within the WPAN; and

a plurality of user piconet devices (DEVs); and wherein:

each DEV of the plurality of DEVs includes GPS functionality that is operable to determine a specific location of that DEV within the WPAN;

each DEV of the plurality of DEVs communicates information corresponding to its specific location to the PNC;

based on the specific locations of each DEV of the plurality of DEVs with respect to the PNC, the PNC groups the plurality of DEVs into at least two groups and identifies a corresponding profile for each group; and

the profile of each group governs the communication between the DEVs of that group and the PNC.

17.   (original)   The WPAN of claim 16, wherein:

the WPAN includes a first piconet and a second piconet;

the PNC is a first PNC;

the plurality of DEVs is a first plurality of DEVs;

the second piconet includes a second PNC and a second plurality of DEVs;

each DEV of the second plurality of DEVs includes GPS functionality that is operable to determine the specific location of each DEV of the second plurality of DEVs within the WPAN;

each DEV of the second plurality of DEVs and of the first plurality of DEVs communicates information corresponding to its specific location to the first PNC and to the second PNC; and

based on the specific locations of each DEV of the first plurality of DEVs and of the second plurality of DEVs with respect to the first PNC and the second PNC, the first PNC and the second PNC operate cooperatively to group each of the DEVs of the first plurality of DEVs and the second plurality of DEVs into either the first piconet or the second piconet.

18.   (previously amended)The WPAN of claim 16, wherein:

the PNC sets up peer to peer (p2p) communication between two DEVs of the plurality of DEVs;

the PNC identifies a p2p profile to govern communication between the two DEVs that communicate using p2p communication; and

the p2p profile includes at least one of a data rate, a modulation density, a code having a code rate, and a time frequency code (TFC).

19.   (original)   The WPAN of claim 18, wherein:

the PNC operates as a repeater for the p2p communication between the two DEVs of the plurality of DEVs.

20.   (previously amended)The WPAN of claim 16, wherein:

one of the profiles includes at least one of a data rate, a modulation density, a code having a code rate, and a time frequency code (TFC).

21.   (previously amended)The WPAN of claim 16, wherein:

a first group of the at least two groups includes DEVs of the plurality of DEVs that are relatively closer to the PNC than DEVs of the plurality of DEVs that are in a second group;

a first profile that governs the communication between the DEVs of the first group and the PNC includes at least one of a first data rate, a first modulation density, a first code having a first code rate, and a first time frequency code (TFC); and

a second profile that governs the communication between the DEVs of the second group and the PNC includes at least one of a second data rate, a second modulation density, a second code having a second code rate, and a second TFC.

22.   (original)   The WPAN of claim 21, wherein:

the first data rate is greater than the second data rate.

23.   (original)   The WPAN of claim 21, wherein:

the first modulation density is of a higher order than the second modulation density.

24. (original)   The WPAN of claim 21, wherein:

the first code rate is higher than the second code rate.

25. (original)   The WPAN of claim 16, wherein:

each DEV of the plurality of DEVs repeatedly communicates information corresponding to its specific location to the PNC after every elapse of a predetermined period of time.

26. (original)   The WPAN of claim 25, wherein:

the PNC detects a change in position of at least one DEV of the plurality of DEVs that has been grouped into a first group;

based on the change in position of the at least one DEV of the plurality of DEVs, the PNC groups the at least one DEV of the plurality of DEVs into a second group.

27. (currently amended) A Wireless Personal Area Network (WPAN), the WPAN comprising:

a first piconet coordinator (PNC);

a second PNC; and

a plurality of user piconet devices (DEVs); and wherein:

the first PNC and the second PNC transmit Ultra Wide Band (UWB) pulses to each DEV within the plurality of DEVs;

after receiving its respective UWB pulse, each DEV within the plurality of DEVs transmits a first at least one additional respective UWB pulse back to the first PNC and a second at least one additional respective UWB pulse back to the second PNC;

both the first PNC and the second PNC perform ranging of relative position of each DEV within the plurality of DEVs using the time duration of round trip time of

the respective transmitted UWB pulse and the first or second at least one additional respective received UWB pulse thereby determining distances between the first PNC and the second PNC and each DEV within the plurality of DEVs;

based on the ranging of relative position of each DEV of the plurality of DEVs, the first PNC and the second PNC operate cooperatively to group the plurality of DEVs into at least two groups and also operate cooperatively to identify a corresponding profile for each group thereby forming a plurality of profiles; and

the profile of each group governs the communication between the DEVs of that group and either the first PNC or the second PNC.

28. (original) The WPAN of claim 27, wherein:

one group of the at least two groups that includes a first plurality of DEVs selected from the plurality of DEVs and the first PNC forms a first piconet; and

another group of the at least two groups that includes a second plurality of DEVs selected from the plurality of DEVs and the second PNC forms a second piconet.

29. (original) The WPAN of claim 27, wherein:

one group of the at least two groups includes a first plurality of DEVs selected from the plurality of DEVs and the first PNC; and

another group of the at least two groups includes a second plurality of DEVs selected from the plurality of DEVs and the first PNC.

30. (previously amended) The WPAN of claim 27, wherein:

either the first PNC or the second PNC sets up peer to peer (p2p) communication between two DEVs of the plurality of DEVs;

either the first PNC or the second PNC identifies a p2p profile to govern communication between the two DEVs that communicate using p2p communication; and

the p2p profile includes at least one of a data rate, a modulation density, a code having a code rate, and a time frequency code (TFC).

31.   (original)   The WPAN of claim 27, wherein:

either the first PNC or the second PNC operates as a repeater for the p2p communication between the two DEVs of the plurality of DEVs.

32.   (previously amended)The WPAN of claim 27, wherein:

one of the profiles includes at least one of a data rate, a modulation density, a code having a code rate, and a time frequency code (TFC).

33.   (previously amended)The WPAN of claim 27, wherein:

a first group of the at least two groups includes DEVs of the plurality of DEVs that are relatively closer to either the first PNC or the second PNC than DEVs of the plurality of DEVs that are in a second group;

a first profile that governs the communication between the DEVs of the first group and either the first PNC or the second PNC includes at least one of a first data rate, a first modulation density, a first code having a first code rate, and a first time frequency code (TFC); and

a second profile that governs the communication between the DEVs of the second group and either the first PNC or the second PNC includes at least one of a second data rate, a second modulation density, a second code having a second code rate, and a second TFC.

34.   (original)   The WPAN of claim 33, wherein:

the first data rate is greater than the second data rate.

35.   (original)   The WPAN of claim 33, wherein:

the first modulation density is of a higher order than the second modulation density.

36.   (original)   The WPAN of claim 33, wherein:

the first code rate is higher than the second code rate.

37.   (previously amended)The WPAN of claim 27, wherein:

the UWB pulses are generated using a frequency band of a UWB frequency spectrum that spans from 3.1 Giga-Hertz (GHz) to 10.6 GHz.

38.   (previously amended)The WPAN of claim 37, wherein the UWB frequency spectrum is divided into a plurality of frequency bands; and

each frequency band of the plurality of frequency bands has a bandwidth of 500 Mega-Hertz (MHz).

39.   (currently amended) A Wireless Personal Area Network (WPAN) management method, the method comprising:

determining distances between a piconet coordinator (PNC) and each user piconet device (DEV) of a plurality of DEVs within a WPAN;

based on the distances between the PNC and each DEV of the plurality of DEVs, grouping the plurality of DEVs into at least two groups of DEVs;

assigning a corresponding profile for each group of DEVs that governs the communication between the DEVs of that group of DEVs and the PNC; ~~and~~

for each group of DEVs, supporting communication between the DEVs of that group of DEVs and the PNC<u>;</u>

<u>monitoring relative positions of each DEV of the plurality of DEVs with respect to the PNC; and</u>

<u>based on a change in position of at least one DEV of the plurality of DEVs with respect to the PNC, modifying the profile assignment that corresponds to the at least one DEV whose position has changed.</u>

40.   (currently amended) The method of claim 39, <u>wherein:</u> ~~further comprising:~~

~~monitoring relative positions of each DEV of the plurality of DEVs with respect to the PNC; and~~

~~based on a~~ the ~~change in position of at least one DEV of the plurality of DEVs~~ ~~with respect to the PNC,~~ the modifying the profile assignment that corresponds to the at least one DEV whose position has changed <u>includes changing the profile assignment from a first profile assignment corresponding to a first of the at least two groups to a second profile assignment corresponding to a second of the at least two groups</u>.

41.   (previously amended)The method of claim 39, wherein:

the determining of the distances between the PNC and each DEV of the plurality of DEVs within the WPAN is performed using triangulation that involves using the relative locations of at least two DEVs and the PNC with respect to one another.

42.   (previously amended)The method of claim 39, wherein:

the determining of the distances between the PNC and each DEV of the plurality of DEVs within the WPAN is performed using Global Positioning System (GPS) functionality contained within the PNC and also within each DEV of the plurality of DEVs within the WPAN.

43.   (previously amended)The method of claim 39, further comprising:

using the PNC to sets up peer to peer (p2p) communication between two DEVs of the plurality of DEVs;

determining a distance between the two DEVs of the plurality of DEVs;

supporting communication between the two DEVs of the plurality of DEVs using a first profile when the distance between the two DEVs of the plurality of DEVs is less than a predetermined distance; and

supporting communication between the two DEVs of the plurality of DEVs using a second profile when the distance between the two DEVs of the plurality of DEVs is greater than or equal to the predetermined distance.

44.   (previously amended)The method of claim 39, wherein:

a first group of the at least two groups includes DEVs of the plurality of DEVs that are relatively closer to the PNC than DEVs of the plurality of DEVs that are in a second group;

a first profile that governs the communication between the DEVs of the first group and the PNC includes at least one of a first data rate, a first modulation density, a first code having a first code rate, and a first time frequency code (TFC); and

a second profile that governs the communication between the DEVs of the second group and the PNC includes at least one of a second data rate, a second modulation density, a second code having a second code rate, and a second TFC.

45.   (original)   The method of claim 44, wherein:
the first data rate is greater than the second data rate.

46.   (original)   The method of claim 44, wherein:
the first modulation density is of a higher order than the second modulation density.

47.   (original)   The method of claim 44, wherein:
the first code rate is higher than the second code rate.

48.   (previously amended)The method of claim 39, wherein:
the determining of the distances between the PNC and each DEV of the plurality of DEVs within a WPAN is performed by:

the PNC transmitting a respective Ultra Wide Band (UWB) pulse to each DEV within the plurality of DEVs;

after receiving its respective UWB pulse, each DEV within the plurality of DEVs transmits at least one additional respective UWB pulse back to the PNC; and

the PNC performs ranging of relative position of each DEV within the plurality of DEVs using the time duration of round trip time of the respective transmitted UWB pulse and the at least one additional respective received UWB pulse thereby

determining the distances between the PNC and each DEV within the plurality of DEVs.

49. (previously amended)The method of claim 48, wherein:

wherein the UWB pulses are generated using a frequency band of a UWB frequency spectrum that spans from 3.1 Giga-Hertz (GHz) to 10.6 GHz;

the UWB frequency spectrum is divided into a plurality of frequency bands; and

each frequency band of the plurality of frequency bands has a bandwidth of 500 Mega-Hertz (MHz).

50. (currently amended) A Wireless Personal Area Network (WPAN) management method, the method comprising:

determining the locations of a piconet coordinator (PNC) and each user piconet device (DEV) of a plurality of DEVs within a WPAN using Global Positioning System (GPS);

wherein the PNC includes GPS functionality;

wherein each DEV of a plurality of DEVs includes GPS functionality;

communicating information corresponding to the locations of each DEV of a plurality of DEVs to the PNC;

based on the locations of each DEV of a plurality of DEVs with respect to the PNC, grouping the plurality of DEVs into at least two groups;

assigning a corresponding profile for each group that governs the communication between the DEVs of that group and the PNC; and

for each group, supporting communication between the DEVs of that group and the PNC.

51. (original)   The method of claim 50, wherein:

the communicating of the information corresponding to the locations of each DEV of a plurality of DEVs to the PNC is performed after every elapse of a predetermined period of time.

52.   (previously amended)The method of claim 50, further comprising:

using the PNC to sets up peer to peer (p2p) communication between two DEVs of the plurality of DEVs;

using information corresponding to the location of the two DEVs of the plurality of DEVs, determining a distance between the two DEVs of the plurality of DEVs;

supporting communication between the two DEVs of the plurality of DEVs using a first profile when the distance between the two DEVs of the plurality of DEVs is less than a predetermined distance; and

supporting communication between the two DEVs of the plurality of DEVs using a second profile when the distance between the two DEVs of the plurality of DEVs is greater than or equal to the predetermined distance.

53.   (previously amended)The method of claim 50, wherein:

a first group of the at least two groups includes DEVs of the plurality of DEVs that are relatively closer to the PNC than DEVs of the plurality of DEVs that are in a second group;

a first profile that governs the communication between the DEVs of the first group and the PNC includes at least one of a first data rate, a first modulation density, a first code having a first code rate, and a first time frequency code (TFC); and

a second profile that governs the communication between the DEVs of the second group and the PNC includes at least one of a second data rate, a second modulation density, a second code having a second code rate, and a second TFC.

54.   (original)   The method of claim 53, wherein:

the first data rate is greater than the second data rate.

55.   (original)   The method of claim 53, wherein:

the first modulation density is of a higher order than the second modulation density.

56. (original)   The method of claim 53, wherein:

the first code rate is higher than the second code rate.

57. (original)   The method of claim 50, wherein:

the PNC detects a change in position of at least one DEV of the plurality of DEVs that has been grouped into a first group; and

based on the change in position of the at least one DEV of the plurality of DEVs, grouping the at least one DEV of the plurality of DEVs into a second group.

58. (original)   The method of claim 50, further comprising:

detecting a change in position of at least one DEV of the plurality of DEVs that has been grouped into a first group and assigned a first profile to govern the communication between the at least one DEV of the plurality of DEVs and the PNC; and

based on the change in position of the at least one DEV of the plurality of DEVs, assigning a second profile to govern the communication between the at least one DEV of the plurality of DEVs and the PNC.